

WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:

attribute information generation means for
generating attribute information indicating an attribute
5 of an image in correspondence with a command that
represents the image;

bitmap data generation means for generating bitmap
image data by rendering the command; and

image processing means for performing an image
10 process of the bitmap image data in accordance with the
attribute information,

wherein attribute information at an overlapping
position of first and second images in accordance with
the command is determined in accordance with attribute
15 information of the first image and attribute information
of the second image.

2. The apparatus according to claim 1, wherein the
image process is a resolution converting process.

3. The apparatus according to claim 1, wherein said
20 bitmap data generation means generates bitmap image data
by overwriting a rendered bitmap image.

4. The apparatus according to claim 1, wherein the
image process is at least one of a dither process and
UCR process.

processing means for appending information
indicating the type of synthesized object to a rendering
result obtained by rendering the object to be rendered
in units of pixels.

5 10. The apparatus according to claim 9, wherein the
type of object to be rendered includes information
indicating if an object is a bitmap or a vector graphic.

11. The apparatus according to claim 9, wherein the
type of object to be rendered includes information
10 indicating if an object is a color or monochrome object.

12. The apparatus according to claim 9, wherein the
type of object to be rendered includes information
indicating if an object is a character or an object
other than the character.

15 13. The apparatus according to claim 9, wherein the
type of object to be rendered includes information
indicating if an object is a tone or resolution priority
object.

14. The apparatus according to claim 9, further
20 comprising image processing means for performing an
image process of data of the rendering result in
accordance with the information of the type of object.

15. The apparatus according to claim 14, wherein the
image process includes a binarization process, filter
25 process, and black character extraction process.

16. The apparatus according to claim 15, wherein the image process outputs rendered data using black alone when it is determined in accordance with information of the object that the object is a black character.

5 17. The apparatus according to claim 9, wherein said synthesis means synthesizes the object in accordance with one of synthesis modes including or, and, xor, and α blend.

10 18. The apparatus according to claim 9, wherein the synthesis is inhibited upon receiving an inhibition command of the synthesis process.

15 19. The apparatus according to claim 18, wherein the inhibition command is input by a printer driver of a host computer connected to said image processing apparatus.

20. The apparatus according to claim 9, wherein the synthesis is done for at least two different objects.

21. An image processing apparatus for processing and outputting input image data, comprising:

20 input means for inputting image data composed of a plurality of objects;

rendering means for rendering the objects into bitmap image data;

25 generation means for generating attribute map information indicating a configuration of the bitmap image data on the basis of the bitmap image data

rendered by said rendering means and attributes of the objects; and

determination means for determining a range of the bitmap image data, which is to undergo a predetermined
5 image process, on the basis of the attribute map information generated by said generation means.

22. The apparatus according to claim 21, wherein the predetermined image process is an image area separation process.

10 23. The apparatus according to claim 21, wherein the attribute map information includes at least a vector flag and bitmap flag.

24. The apparatus according to claim 21, wherein the attribute map information is generated in correspondence
15 with two-dimensional coordinate positions of the bitmap image data.

25. The apparatus according to claim 21, wherein said generation means comprises an attribute map memory for storing the generated attribute map information.

20 26. The apparatus according to claim 21, wherein when the bitmap image data is managed in units of R, G, and B planes, the attribute map information is managed as an attribute map plane added to the R, G, and B planes.

27. The apparatus according to claim 21, wherein when
25 R, G, and B data of the bitmap image data are managed in

units of pixels, the attribute map information is managed while being appended to each pixel.

28. The apparatus according to claim 21, wherein when the bitmap image data is managed in units of R, G, and B
5 planes, the attribute map information is managed while being appended to pixels of one or a plurality of the R, G, and B planes.

29. The apparatus according to claim 21, wherein when R, G, and B data of the bitmap image data are managed in
10 units of pixels, the attribute map information is managed while being appended to color information of one or a plurality of R, G, and B data in units of pixels.

30. The apparatus according to claim 21, wherein said determination means comprises image area separation
15 processing means for performing an image area separation process for the bitmap image data.

31. The apparatus according to claim 21, wherein said determination means updates the attribute map
20 information on the basis of a processing result of said image area separation processing means.

32. An image processing method comprising:
the attribute information generation step of
generating attribute information indicating an attribute
of an image in correspondence with a command that
25 represents the image;

the bitmap data generation step of generating
bitmap image data by rendering the command; and

the image processing step of performing an image
process of the bitmap image data in accordance with the
5 attribute information,

wherein attribute information at an overlapping
position of first and second images in accordance with
the command is determined in accordance with attribute
information of the first image and attribute information
10 of the second image.

33. A storage medium which stores program codes which
are loaded and executed by a computer to make the
computer function as an image processing apparatus, said
program codes storing:

15 a program code of the attribute information
generation step of generating attribute information
indicating an attribute of an image in correspondence
with a command that represents the image;

a program code of the bitmap data generation step
20 of generating bitmap image data by rendering the
command; and

a program code of the image processing step of
performing an image process of the bitmap image data in
accordance with the attribute information,

25 wherein attribute information at an overlapping
position of first and second images in accordance with

the command is determined in accordance with attribute information of the first image and attribute information of the second image.

34. An image processing method comprising:

5 the discrimination step of discriminating a type of object to be rendered;

the determination step of determining the presence/absence of synthesis of the discriminated object;

10 the synthesis step of synthesizing an object and information of the type of object in accordance with the determination result; and

the processing step of appending information indicating the type of synthesized object to a rendering
15 result obtained by rendering the object to be rendered in units of pixels.

35. A storage medium which stores program codes which are loaded and executed by a computer to make the computer function as an image processing apparatus, said
20 program codes storing:

a program code of the discrimination step of discriminating a type of object to be rendered;

a program code of the determination step of determining the presence/absence of synthesis of the
25 discriminated object;

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a program code of the synthesis step of synthesizing an object and information of the type of object in accordance with the determination result; and

a program code of the processing step of appending
5 information indicating the type of synthesized object to a rendering result obtained by rendering the object to be rendered in units of pixels.

36. An image processing method for processing and outputting input image data, comprising:

10 the input step of inputting image data composed of a plurality of objects;

the rendering step of rendering the objects into bitmap image data;

the generation step of generating attribute map
15 information indicating a configuration of the bitmap image data on the basis of the bitmap image data rendered in the rendering step and attributes of the objects; and

the determination step of determining a range of
20 the bitmap image data, which is to undergo a predetermined image process, on the basis of the attribute map information generated in the generation step.

37. A computer readable memory that stores program
25 codes of an image process for processing and outputting input image data, comprising:

a program code of the input step of inputting
image data composed of a plurality of objects;

a program code of the rendering step of rendering
the objects into bitmap image data;

5 a program code of the generation step of
generating attribute map information indicating a
configuration of the bitmap image data on the basis of
the bitmap image data rendered in the rendering step and
attributes of the objects; and

10 a program code of the determination step of
determining a range of the bitmap image data, which is
to undergo a predetermined image process, on the basis
of the attribute map information generated in the
generation step.